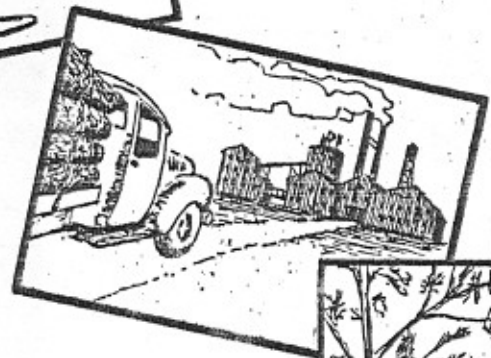
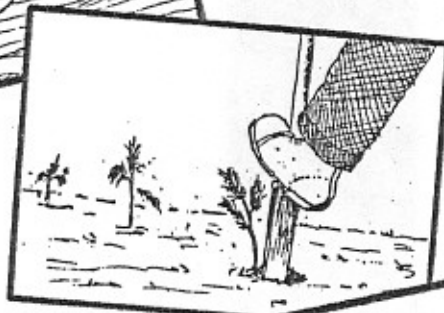
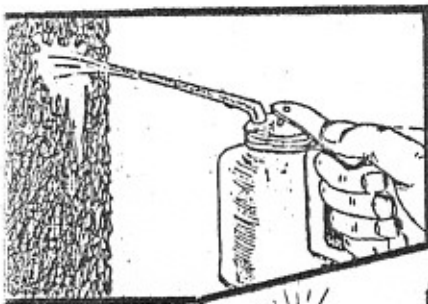


FERTILIZATION OF PLANTED LOBLOLLY PINE SEEDLINGS
FAILS TO INCREASE HEIGHT GROWTH



Virginia Division of Forestry
Department of Conservation & Economic Development
Charlottesville, Virginia

Fertilization of Planted Loblolly Pine Seedlings
Fails To Increase Height Growth

Summary

The Virginia Division of Forestry conducted four separate fertilizer trials whereby different fertilizers were applied to loblolly pine seedlings planted under normal planting site conditions in different sections of Virginia.

In each of the fertilizer trials mentioned above a statistical analysis was made and a comparison of height growth between fertilized and non-fertilized seedlings failed to show any significant height growth differences.

What Was Tried and Results

The following four fertilizer trials mentioned were tried and since they were separate trials in different locations each will be considered individually:

1. Frank Hatcher tract---Cut-over woodland located in Halifax County. Loblolly pine seedlings hand planted January 15, 1960. Soil type: Georgeville silt loam. Pines fertilized^{1/} on March 29, 1960, using 3.3 oz. of fertilizer per tree, analysis 7-14-11.

As of September 19, 1961, a summary of average total tree heights for the first two growing seasons is as follows.

<u>Block</u>	<u>Fertilized</u>	<u>Non-Fertilized</u>
	<u>(Average Total Height-Feet)</u>	
1.	3.35	4.13
2.	2.70	3.32
3.	3.64	3.41
4.	<u>2.87</u>	<u>2.52</u>
Average	3.14	3.34

Results: No significant difference in average total heights was found when comparing fertilized with non-fertilized trees.

^{1/} The fertilizer was applied broadcast in a 15 inch band around the base of the tree with no fertilizer being placed against the tree itself.

2. Ira L. Harding tract---Open field with broom straw cover on which loblolly pines were machine planted during spring, 1958, also located in Halifax County. Soil type: Cecil fine sandy loam. Pines fertilized (similar manner as Hatcher) on March 31, 1960, using 3.3 oz. of fertilizer per tree with an analysis of 7-14-11.

Height measurements taken September 19, 1961, indicate the following average total heights for two growing seasons after being fertilized (the seedlings were three years old when fertilized):

Block	Fertilized (Average Total Height-Foot)	Non-Fertilized
1.	7.57	6.79
2.	5.70	6.13
3.	6.81	7.08
4.	<u>7.25</u>	<u>7.08</u>
Average	6.83	6.77

Results: There were no significant differences in total height when comparing fertilized trees with non-fertilized trees.

3. Northumberland County Forest---Located in Northumberland County. Two different sites were planted but both received similar fertilizer treatments. The two sites were: (1) open field which had been in soybeans the year before it was planted to loblolly pines, and (2) cut-over land which was clean-bulldozed to prepare a planting site. The soil type for both sites is Kempsville fine sandy loam. The loblolly pines were hand planted during February, 1959 on both areas and fertilizer broadcast in a 15 inch band around the seedling but staying approximately 2 inches away from the base of the seedling.

The following treatments were used (on both sites):

A-Control, no fertilizer applied
 B-2½ oz. of 10-10-10 per seedling during November 1959.
 C-5 " " " " " " " " "
 D-2½ " " " " " " " " " plus mulch^{1/}.
 E-5 " " " " " " " " " "
 F-2½ " " " " " " " " " March 1960.
 G-5 " " " " " " " " " "
 H-2½ " " " " " " " " " plus mulch.
 I-5 " " " " " " " " " "

^{1/} The mulch consisted of a 3-inch layer of half rotted sawdust. Where mulch was used the fertilizer was applied on top of the mulch.

The summary which follows is based on field data gathered on March 7, 1961, and summarizes average total tree heights by treatment for the first two growing seasons after treatment:

(Bulldozed Site)

AVERAGE HEIGHT GROWTH-INCHES

Treatments									
Block	A	B	C	D	E	F	G	H	I
I	18.4	28.1	22.9	23.8	31.5	18.5	21.5	23.6	17.8
III	11.0	12.8	17.8	17.3	21.0	20.8	21.7	17.3	20.3
Averages	14.7	20.4	20.4	20.6	26.2	19.6	21.6	20.4	19.0

(Open Field Site)

Treatments

II	22.1	16.3	13.9	16.2	21.0	19.1	15.2	13.8	17.9
IV	18.1	21.7	15.0	23.0	22.0	16.0	13.5	16.0	12.2
Averages	20.1	20.3	14.4	19.0	21.5	17.5	14.4	14.9	15.1

Results: On both planting sites, bulldozed and open field, no significant height growth differences^{1/} appeared when comparing the different treatments used.

4. Buckingham-Appomattox State Forest---Located in Buckingham County. Open field with light weed cover. Loblolly pines hand planted February 24, 1959. Soil type: Lloyd clay loam.

Mora Tree feed fertilizer pellets (these fertilizer pellets each weigh 9 grams and contain 24% nitrogen as N and 6% phosphorous as P O) were applied on February 24, 1959.

^{1/} Thanks is due to Pieter E. Hoekstra, U.S.F.S., Southeastern Forest Experiment Station, for his assistance in analysis of this data.

The following treatments were used:

1. Check-no Mora Tree feed pellets used.
2. One Mora Tree feed pellet placed in planting¹/hole.
3. " " " " " " " closing¹/hole.
4. Two " " " pellets " " planting " .
5. " " " " " " " closing " .

On March 15, 1961, total height data were gathered following two growing seasons after the trees were fertilized and is summarized below by treatments:

	Treatments				
Block	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
	(Average Total Height-Feet)				
A	1.61	1.42	1.79	1.52	1.45
B	1.56	1.70	1.59	1.58	1.43
C	1.68	1.66	1.84	1.28	1.66
D	<u>1.52</u>	<u>1.54</u>	<u>1.20</u>	<u>1.60</u>	<u>1.62</u>
Averages	1.59	1.58	1.60	1.49	1.54

Results: There were no significant results or differences found in height growth when the different treatments were compared.

¹/ The Mora Tree feed pellet or pellets were placed directly in the planting hole occupied by the roots of the planted tree.

²/ The Mora Tree feed pellet or pellets were placed in the closing hole or the hole made by the planting bar to "firm" up soil around the planted seedling.

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